

AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Currently Amended) A method of manufacturing a lead comprising the steps of:
The method as claimed in claim 1

placing an inner layer of extrusion material on a mandrel;

placing at least one conductor coated with a layer of extrusion material on the inner layer of extrusion material;

placing an outer layer of extrusion material over the at least one conductor coated with a layer of extrusion material to form a lead body assembly, wherein after the outer layer is placed, an inter-layer discontinuity is present between the outer layer of extrusion material and the inner layer of extrusion material;

forming the lead body assembly, wherein the formed lead body assembly comprises a solid matrix of fused extrusion material and wherein the at least one conductor is embedded within the solid matrix, wherein the forming step further comprises the steps of:

placing heat shrink tubing over the lead body assembly;

heating the lead body assembly to melt the extrusion material of at least the inner and outer layers in the lead body assembly;

compressing the melted extrusion material around the at least one conductor coated with a layer of extrusion material in the lead body assembly with the heat shrink tubing;

cooling the lead body assembly to form the lead body, wherein the inter-layer discontinuity is removed along a substantially length of the lead body after the cooling is performed; and

removing the heat shrink tubing from the lead body;

attaching at least one electrode to the at least one conductor at a distal end of the lead body; and

attaching at least one connector to the at least one conductor at a proximal end of the lead body.

3. (Currently Amended) The method as claimed in claim 2 [[1]] wherein the extrusion material of the inner layer and the extrusion material on the at least one conductor coated with a layer of extrusion material and the extrusion material of the outer layer are formed from the same type of extrusion material.

4-44. (Cancelled)

45. (New) A method of manufacturing a lead comprising the steps of:
forming an inner layer of extrusion material;
placing a plurality of conductors on the inner layer of extrusion material, wherein each conductor is coated with a respective layer of extrusion material;
placing an outer layer of extrusion material over the plurality of conductors to form a lead body assembly, wherein after the outer layer is placed, an inter-layer discontinuity is present between the outer layer of extrusion material and the inner layer of extrusion material;

forming the lead body assembly, wherein the formed lead body assembly comprises a solid matrix of fused extrusion material and wherein the plurality of conductors are embedded within the solid matrix, wherein the forming step further comprises the steps of:

- (a) placing heat shrink tubing over the lead body assembly;
 - (b) heating the lead body assembly to melt at least the extrusion material of the inner layer and the outer layer;
 - (c) compressing the melted extrusion material of the inner layer and the outer layer around the plurality of conductors with the heat shrink tubing;
 - (d) cooling the lead body assembly to form the lead body, wherein the inter-layer discontinuity is removed along a substantially length of the lead body after the cooling is performed; and
 - (e) removing the heat shrink tubing from the lead body;
- electrically coupling electrodes to conductors at a distal end of the lead body; and electrically coupling connectors to conductors at a proximal end of the lead body.

46. (New) The method of claim 45 wherein the plurality of conductors are helically placed around the inner layer of extrusion material.

47. (New) The method as claimed in claim 45 wherein the extrusion material of the inner layer and the extrusion material on the at least one conductor coated with a layer of extrusion material and the extrusion material of the outer layer are formed from the same type of extrusion material.

48. (New) A method of manufacturing a lead comprising the steps of:
forming an inner layer of extrusion material;
placing a plurality of conductors on the inner layer of extrusion material, where each conductor is coated with a respective layer of extrusion material;
placing an outer layer of extrusion material over the plurality of conductors to form a lead body assembly, wherein after the outer layer is placed, an inter-layer discontinuity is present between the outer layer of extrusion material and the inner layer of extrusion material;

forming the lead body assembly, wherein the formed lead body assembly comprises a solid matrix of fused extrusion material and wherein the plurality of conductors are embedded within the solid matrix, wherein the forming step further comprises the steps of:

(a) heating the lead body assembly to melt at least the extrusion material of the inner layer and the outer layer;

(b) concurrently with the heating, uniformly compressing the melted extrusion material of the inner layer and the outer layer around the plurality of conductors;

(d) cooling the lead body assembly to form the lead body, wherein the inter-layer discontinuity is removed along a substantially length of the lead body after the cooling is performed; and

(c) removing the heat shrink tubing from the lead body;
electrically coupling electrodes to conductors at a distal end of the lead body; and
electrically coupling connectors to conductors at a proximal end of the lead body.

49. (New) The method of claim 48 wherein the plurality of conductors are helically placed around the inner layer of extrusion material.

50. (New) The method as claimed in claim 48 wherein the extrusion material of the inner layer and the extrusion material on the at least one conductor coated with a layer of extrusion material and the extrusion material of the outer layer are formed from the same type of extrusion material.